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- (57) **ABSTRACT**

- A comminuted cellulosic fibrous material treatment vessel assembly includes a substantially vertical vessel having a top, bottom, and outlet, and through which the material flows in a flow direction. The vessel preferably has a substantially cylindrical wall with at least one diameter-changing transition between the inlet and the outlet. A screen assembly is preferably provided at or just past the transition. The screen assembly comprises one or more annular screen surfaces diverging in the flow direction of the material, the angle of divergence being between about  $0.5\text{--}10^\circ$  to the vertical, and preferably substantially continuous. Providing such a screen assembly reduces the radial compression of material thereon, and increases the volume and rate of liquid that can flow through the material and be removed through the screen surface compared to a non-diverging screen surface (that is a right-cylindrical surface). The screen surface has openings of substantially uniform size, and preferably with a substantially uniform percentage of open area, in the flow path.

**17 Claims, 4 Drawing Sheets**

- (58) **Field of Search** ..... 162/237, 251,  
162/17, 19, 248, 249, 243, 37, 39, 40, 41,  
42-45, 60; 422/218, 239, 292

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